



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,030	06/21/2005	Tito Bacarese-Hamilton	FBU-001US	2254
959 7590 08/20/2008 LAHIVE & COCKFIELD, LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109				
EXAMINER NUR, ABDULLAH				
ART UNIT 2877		PAPER NUMBER		
MAIL DATE 08/20/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/512,030

**Applicant(s)**

BACARESE-HAMILTON ET AL.

**Examiner**

ABDULLAHI NUR

**Art Unit**

2877

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 4/28/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 10 and 13-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10, 13-20, 22-25, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 6-8, 21, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Response to Arguments**

Applicant's argument filed on 4/28/2008 with respect to claims 1-8, 10 and 13-27 is acknowledged.

1. Applicant's arguments with respect to claims 1-8, 10 and 13-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 5, 10, 14-19, 22, 23, and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Naghie et al. (US Patent # 6,754,414 B2)[hereinafter Naghie] in view of Kain et al. (US Patent # 5,578,818) [hereinafter Kain].

As to claims 1 and 10, Naghieh teaches a device for analyzing fluorescent signals emitted from fluorescently labeled material bound to a microarray assay of the type having at least one microspot deposited on a substantially flat surface, the device comprising: an illuminator 14 for illuminating the fluorescently labeled material at an appropriate wavelength to induce fluorescence; a detector 36 for detecting fluorescent signals emitted by the fluorescently labeled material; a signal processor 38 for processing the signals detected; an optical system having an excitation optical path and a detection optical path (Fig.3); the illuminator comprising a light emitting diode (column 3, line 66) arranged to illuminate the material with incoherent illumination and to simultaneously illuminate all, or a substantial portion of at least one microspot (column 6, lines 20-21).

Naghieh is silent to the excitation and detection optical paths being substantially coaxial. Kain teaches LED scanning system wherein the excitation and detection optical paths being substantially coaxial (Fig.1) to provide a compact, inexpensive system, that enhance the detection of signal radiation emanating from a sample.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a system wherein the excitation and detection optical paths being substantially coaxial, in order to provide a compact, inexpensive system that enhance of the detection of signal radiation emanating from a sample.

As to claim 2, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches an excitation filter 16 positioned in the excitation optical path

to filter out longer wavelengths emitted by the LED before they reach the material to be analyzed.

As to claim 4, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches comprising an emission filter 32 positioned in the detection optical path to filter out any directly reflected illumination from the material.

As to claim 5, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches a flat surface comprising a glass slide (column 3, lines 53-55).

As to claim 14, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches a device wherein the fluorescently labeled material is bound to plural microspots, and the microspots are deposited in an array on the substantially flat surface (column 3, lines 43-55).

As to claim 15, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches the flat surface comprising a plate used for microarray assay or immunoassay type tests (column 3, lines 43-55).

As to claims 16-19, Naghieh in view of Kain teaches all as applied to claim 1, and in addition Naghieh teaches a device wherein the light emitting diode illuminates an area at the location of the microspot having a diameter in the said range (column 6, lines 40-43).

As to claim 22, Naghieh in view of Kain teaches all as applied to claim 10, and in addition Naghieh teaches a method further comprising: providing fluorescently labeled material bound to plural microspots, the microspots deposited in an array on a substantially flat surface (column 3, lines 43-55).

As to claim 23, Naghie in view of Kain teaches all as applied to claim 10, and in addition Naghie teaches a method further comprising: placing an excitation filter 16 in an excitation optical path between the LED and the at least one microspot, the excitation filter substantially preventing longer wavelengths emitted by the LED from reaching the at least one microspot (column 5, lines 53-67).

As to claim 25, Naghie in view of Kain teaches all as applied to claim 10, and in addition Naghie teaches an emission filter 32 in a detection optical path between the at least one microspot and the optical detector, the emission filter substantially preventing any illumination directly reflected from the sample from reaching the detector (column 6, lines 29-34).

Claims 3, 13, 20, 24, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naghie in view of Kain.

As to claims 3 and 24, Naghie in view of Kain teaches all as applied to claims 2 and 10, except for the excitation filter being a short band pass filter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a short band pass filter in Naghie apparatus, in order to transmit optical signals having wavelengths that are less than a nominal maximum wavelength.

As to claim 13, Naghie in view of Kain teaches all as applied to claim 1, except for the oscillating electrical source driving the light emitting diode such that the intensity of light from the diode is modulated in time. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide oscillating electrical source driving the light emitting diode such that the intensity of light from the

diode is modulated in time, in order to increase the quality of the excitation signal. This modulated electromagnetic radiation allows that the amplitude and or/frequency of the radiation be controlled in a reproducible way.

As to claim 20, Naghieh in view of Kain teaches all as applied to claim 1, except for the signal processor that comprises a lock-in amplifier combined with a voltage meter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a processor with a lock-in amplifier, in order to amplify optical signal directed in the said processor.

As to claims 28 and 29, Naghieh in view of Kain teaches all as applied to claims 1 and 10, except for the dichroic beam splitter between the excitation and detection paths. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use place dichroic beam splitter between the excitation and detection paths in order to enhance resolution.

***Allowable Subject Matter***

1. Claims 6-8, 21, 26 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
2. The following is a statement of reasons for the indication of allowable subject matter:

As to claim 6, prior art of record, taken alone or in combination, fails to disclose or render obvious a device comprising a polarizing filter positioned in the excitation optical path and a second polarizing filter positioned in the detection optical path and

orientated at right angles to the first polarizing filter such that the two filters comprise crossed polarizers positioned in the excitation and the detection optical paths respectively.

As to claim 7, prior art of record, taken alone or in combination, fails to disclose or render obvious a device further comprising a polarizing beam splitter positioned to lie in both the excitation and detection optical paths.

3. As to claim 8, prior art of record, taken alone or in combination, fails to disclose or render obvious a device wherein the signal processor comprises a phase sensitive detector.

As to claim 21, prior art of record, taken alone or in combination, fails to disclose or render obvious a method further comprising: modulating the intensity level of the incoherent illumination from the LED; and processing the signal from the optical detector with phase-sensitive detection instruments.

As to claim 26, prior art of record, taken alone or in combination, fails to disclose or render obvious a method according to claim 10 further comprising: placing a polarizing filter in an excitation optical path between the LED and the at least one microspot; and placing a second polarizing filter in a detection optical path between the sample and the detector, the second polarizing filter optically orientated substantially 90 degrees to the first polarizing filter such that the two filters comprise crossed polarizers positioned in the excitation and the detection optical paths.

As to claim 27, prior art of record, taken alone or in combination, fails to disclose or render obvious a method further comprising: placing a polarizing beam splitter at a



location having coincidence of an excitation optical path between the LED and the at least one microspot and a detection optical path between the at least one microspot and the detector.

Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made."

### **Conclusion**

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdullahi Nur whose telephone number is **571 270 1298**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A.N./  
Abdullahi Nur  
Patent Examiner,  
Art Unit 2877

/Michael A. Lyons/  
Primary Examiner, Art Unit 2877  
August 17, 2008